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NOTICE OF ALLOWANCE AND FEE(S) DUE

45436 7590 04/03/2008

DEAN D. SMALL
THE SMALL PATENT LAW GROUP LLP
611 OLIVE STREET, SUITE 1611
ST. LOUIS, MO 63101

EXAMINER

KISH, JAMES M

ART UNIT

PAPER NUMBER

3737

DATE MAILED: 04/03/2008

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/611,296

07/01/2003

Sarah Rose Hertel

125736 (553-1015)

5583

TITLE OF INVENTION: SYSTEMS AND METHODS FOR ANALYZING AN ABNORMALITY OF AN OBJECT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1440	\$300	\$0	\$1740	07/03/2008

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

45436 7590 04/03/2008

DEAN D. SMALL
THE SMALL PATENT LAW GROUP LLP
611 OLIVE STREET, SUITE 1611
ST. LOUIS, MO 63101

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/611,296 07/01/2003 Sarah Rose Hertel 125736 (553-1015) 5583

TITLE OF INVENTION: SYSTEMS AND METHODS FOR ANALYZING AN ABNORMALITY OF AN OBJECT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1440	\$300	\$0	\$1740	07/03/2008

EXAMINER	ART UNIT	CLASS-SUBCLASS
KISH, JAMES M	3737	600-427000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

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Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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10/611,296	07/01/2003	Sarah Rose Hertel	125736 (553-1015)	5583
45436	7590	04/03/2008	EXAMINER	
DEAN D. SMALL THE SMALL PATENT LAW GROUP LLP 611 OLIVE STREET, SUITE 1611 ST. LOUIS, MO 63101			KISH, JAMES M	
			ART UNIT	PAPER NUMBER
			3737	
DATE MAILED: 04/03/2008				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 569 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 569 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability

Application No.

10/611,296

Applicant(s)

HERTEL ET AL.

Examiner

JAMES KISH

Art Unit

3737

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 1/3/08.
2. ☒ The allowed claim(s) is/are 1-12, 14-18 and 20-24.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date ____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date ____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other ____. |

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Charles Livingston on March 25, 2008.

The application has been amended as follows:

Amendments to the Claims

1. (currently amended) A method for analyzing at least one abnormality of an object, the method comprising:

obtaining a ~~[[first]]~~ computed tomography (CT) image containing an abnormality ~~using a first modality;~~

obtaining a ~~[[second]]~~ positron emission tomography (PET) image containing the abnormality ~~using a second modality;~~

selecting a first region of interest located within the ~~[[first]]~~ CT image;

determining an anatomical size of the abnormality based on the first region of interest in the ~~[[first]]~~ CT image; and

determining a relative metabolic activity based on a second region of interest within the ~~[[second]]~~ PET image; and

determining a specific metabolic activity within the first region of interest of the [[first]] CT image [[using]] by mathematically interpolating the relative metabolic activity within the second region of interest of the [[second]] PET image [[and]] based on the anatomical size of the first region of interest of the CT image, wherein the determined specific metabolic activity is at least one of stored and displayed.

2. (currently amended) A method in accordance with Claim 1 wherein obtaining the [[second]] PET image comprises obtaining the [[second]] PET image containing the abnormality ~~using the second modality~~ within a short amount of time after obtaining the [[first]] CT image.

3. (currently amended) A method in accordance with Claim 1 wherein selecting the first region of interest comprises manually selecting the first region of interest located within the [[first]] CT image.

4. (original) A method in accordance with Claim 1 further comprising:
resizing the second region of interest to match the anatomical size determined from the first region of interest.

5. (previously presented) A method in accordance with Claim 1 wherein determining a specific metabolic activity comprises determining the specific metabolic

activity based at least in part on a difference between the sizes of the first region of interest and the second region of interest.

6. (original) A method in accordance with Claim 1 wherein determining the relative metabolic activity comprises distinguishing metabolic activity within the second region of interest from background metabolic activity.

7. (previously presented) A method in accordance with Claim 1 wherein determining the relative metabolic activity comprises determining whether the metabolic activity within the second region of interest has a likelihood of being related to the abnormality.

8. (original) A method in accordance with Claim 1 wherein determining the anatomical size comprises determining at least one of an area of the first region of interest and a volume of the first region of interest.

9. (currently amended) A method in accordance with Claim 1 wherein determining the anatomical size comprises automatically determining a size based on an area of the [[first]] CT image corresponding to the first region of interest.

10. (currently amended) A computer-readable medium encoded with a program configured to instruct a computer to:

obtain a computed tomography (CT) image containing an abnormality by performing a CT scan of an object;

obtain a positron emission tomography (PET) image containing the abnormality by performing a PET scan of the object;

select a first region of interest located within the CT image;

determine an anatomical size of the abnormality based on the first region of interest in the CT image;

determine a relative metabolic activity based on a second region of interest located on the PET image; and

determine a specific metabolic activity within the first region of interest of the CT image [[using]] by mathematically interpolating the relative metabolic activity within the second region of interest of the PET image [[and]] based on the anatomical size of the first region of interest of the CT image, wherein the determined specific metabolic activity is at least one of stored and displayed.

11. (original) A computer-readable medium in accordance with Claim 10 wherein to obtain the PET image the program configured to obtain the PET image containing the abnormality using a PET scanner within a short amount of time after obtaining the CT image.

12. (original) A computer-readable medium in accordance with Claim 10 wherein to select the first region of interest the program configured to wait for a user to select the first region of interest located within the CT image.

13. (cancelled)

14. (original) A computer-readable medium in accordance with Claim 10 wherein to determine the relative metabolic activity the program configured to determine a relative metabolic activity based in part on the anatomical size of the first region of interest.

15. (original) A computer-readable medium in accordance with Claim 10 wherein to determine the relative metabolic activity the program configured to distinguish metabolic activity within the second region of interest from background metabolic activity.

16. (currently amended) A computer-readable medium in accordance with Claim 10 wherein to determine the relative metabolic activity the program configured to determine whether the metabolic activity within the second region of interest has a likelihood of being related to the abnormality.

17. (original) A computer-readable medium in accordance with Claim 10 wherein to determine the anatomical size the program configured to determine at least one of an area of the first region of interest and a volume of the first region of interest.

18. (previously presented) A computer-readable medium in accordance with Claim 10 wherein to determine the anatomical size comprises automatically determining a size based on an area of the CT image corresponding to the first region of interest.

19. (cancelled)

20. (currently amended) An imaging system for analyzing at least one abnormality of an object, the imaging system comprising:

a radiation source;

a radiation detector; and

a controller operationally coupled to the radiation source and the radiation detector, the controller configured to:

obtain a first image containing an abnormality by performing a computed tomography (CT) scan of an object;

obtain a second image containing the abnormality by performing a positron emission tomography (PET) scan of the object;

select a first region of interest located within the first image;

determine an anatomical size of the abnormality based on the first region of interest in the CT image; and

determine a relative metabolic activity based on a second region of interest located on the second image; and

determine a specific metabolic activity within the first region of interest of the first image ~~[[using]]~~ by mathematically interpolating the relative metabolic activity within the second region of interest of the second image ~~[[and]]~~ based on the anatomical size of the first region of interest of the first image, wherein the determined specific metabolic activity is at least one of stored and displayed.

21. (previously presented) An imaging system in accordance with Claim 20 wherein to obtain the second image the controller configured to obtain the second image containing the abnormality using a PET scanner within a short amount of time after obtaining the first image.

22. (previously presented) An imaging system in accordance with Claim 20 wherein the controller is further configured to mathematically interpolate the relative metabolic activity to determine specific metabolic activity within the first region of interest.

23. (original) An imaging system in accordance with Claim 20 wherein to determine the relative metabolic activity the controller configured to determine a relative metabolic activity is based in part on the anatomical size of the first region of interest.

24. (original) An imaging system in accordance with Claim 20 wherein the imaging system is a PET-CT system and wherein the abnormality is at least one of a lung nodule, an abnormality of a colon of the object, an abnormality of a liver of the object, an abnormality of a breast of the object, an abnormality of an arm of the object, and an abnormality of a brain of the object.

25. (Cancelled)

The following is an examiner's statement of reasons for allowance:

It is known in the art of medical imaging to utilize multiple modalities in order to analyze information from both structural and functional images. However, the current application goes a step further in providing methods for determining specific metabolic activity based on anatomical size of the region of interest as seen in the images.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES KISH whose telephone number is (571)272-5554. The examiner can normally be reached on 8:30 - 5:00 ~ Mon. - Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Brian L Casler/
Supervisory Patent Examiner, Art
Unit 3737

JMK